3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Section 3.0 contains an analysis of the potential for the project to affect the environment and the surrounding area. This EIR focuses on the potential impacts that could occur with the implementation of the proposed Moffett Park Specific Plan Project. The issues evaluated in this section of the EIR include:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services
- Traffic and Circulation
- Utilities

The environmental conditions are described for each of the issues identified above. Impacts to the environment that would be caused by adoption and subsequent implementation of the proposed Specific Plan are discussed. Specific Plan design features, which are components of the project and are assumed in the analysis of the project's potential impacts, are described where appropriate. Many of these design and/or plan features prevent project impacts from occurring.

Mitigation measures are described that would reduce the impact that implementation of the Specific Plan would have on the environment. Where implementation of the mitigation measures would, in and of themselves, result in environmental impacts, these impacts are identified separately. This EIR incorporates both standard mitigation measures, which the City of Sunnyvale applies uniformly to projects within its jurisdiction, and additional mitigation measures, which are designed to mitigate site specific or project specific impacts. Where applicable, Specific Plan design features or their environmental equivalent are incorporated into the mitigation measures (e.g. TDM procedures). An environmental equivalent means a procedure or measure, subject to the approval of the City, which will accomplish the same result and will have the same, or less effect on the environment.

The last element of each issue is significant unavoidable adverse impacts. This describes any impact that cannot be avoided or reduced with mitigation measures to a level that is less than significant.

METHODOLOGY FOR PROJECT ANALYSIS

To address the potential environmental impacts associated with implementation of the proposed Specific Plan, the potential impacts that could occur from future development facilitated by adoption of the proposed Specific Plan are compared to the impacts that could occur from future development that would otherwise occur under the existing General Plan and Zoning Ordinance. In other words, the conditions that would occur at total buildout of the area under the proposed Specific Plan are compared to the conditions that would occur at total buildout of the area under the existing General Plan and Zoning Ordinance. This methodology is used to assess the incremental impacts that would occur beyond General Plan buildout conditions. The incremental impacts are analyzed because the impacts that would occur at General Plan buildout (2020) of the project area have already been addressed by and incorporated within past CEQA documents (EIRs and Mitigated Negative Declarations).

3.1 AESTHETICS

3.1.1 Environmental Setting

REGIONAL SETTING

The Santa Clara Valley has a diversity of natural settings and landscapes that are unique in the Bay Area. The San Francisco Bay to the north, the coastal mountain range to the west and south, and the Diablo Range to the east define the Santa Clara Valley. The Bay and the mountain ranges that define the valley provide scenic views of lush evergreen forests, oak woodlands, baylands, wetlands, and other natural features. The Valley floor features a wide variety of settings, including high-technology (hi-tech) employment centers, residential neighborhoods, and downtown settings, both large and small. There are also several open space areas throughout the Valley, including parks, natural rivers, and stream corridors.

LOCAL SETTING

As previously described, the project area has historically been occupied by the defense industry. The Air Force, the Navy, Lockheed Martin, and NASA are the major organizations that have operated or continue to operate in Moffett Park. In recent years, several hi-tech businesses have developed corporate campuses in Moffett Park, including Yahoo Inc., Juniper Networks, and Ariba. The existing visual character of the planning area is defined by massive military structures, low-rise business park buildings, warehouses, and industrial facilities with a variety of exterior building materials, including stone, glass, metal and stucco. A dense tree canopy lines the wide streets. Paved parking lots and landscaped areas are also dispersed throughout the planning area.

View of Navy Facilities

View of Onizuka Air Force Station

View of low-rise Lockheed Martin Buildings

View of Juniper Networks Building

The project area is bounded by State Route 237 to the south. This freeway is not designated as a state scenic highway. Additionally, no scenic vistas are visible from the project area and the City of Sunnyvale General Plan does not identify scenic resources in or adjacent to the project area.

3.1.1 General Guidelines Related to Aesthetics

Community Design Sub-Element

The City of Sunnyvale General Plan Community Development Element is divided into five sub-elements: Land Use, Open Space and Conservation, Housing and Revitalization, Safety and Seismic Safety, and Community Design. The Community Design Sub-element addresses the quality of the City's physical environment in both the public and private realms. This element establishes design policies and action statements to guide future growth and enhance existing development. The policies and action statements are grouped by the following topics:

- City's Image
- The View from the Road
- Private Development
- Public Facilities

Zoning Ordinance

Title 19 of the Sunnyvale Municipal Code (Zoning Ordinance) provides guidelines and regulations regarding the visual quality of new development through established landscaping, irrigation, and useable open space requirements, and requirements related to public artwork in private developments.

Title 19.38.070, Landscaping, Irrigation, and Useable Open Space, establishes the landscaping requirements for new developments in the City. The major landscaping requirements for the M-3 zoning district are summarized below:

- The minimum landscaped area shall equal 10 percent of the gross floor area, with 1 tree and 2 shrubs per each 300 square feet of required landscape area.
- At least 20 percent of the net lot area shall be landscaped.
- Development in the M-3 zone does not require useable open space.
- A 15 foot landscaped buffer strip is required along the entire edge of all public roadways.
- One tree shall be provided for every seven parking spaces; trees may be clustered.

The proposed project would be required to comply with the landscaping, irrigation, and useable open space requirements of the Municipal Code.

Title 19.52.030, Required Artwork in Private Development, establishes the requirements for public art in private development projects. Generally, public art must be included in projects that are either large in scale or that have unique visual impacts. The types of art that can be used to satisfy the requirements of the ordinance include sculpture, painting, graphic arts, mosaics, crafts, and any other art form determined by the Arts Commission to satisfy the intent of the ordinance. Public artwork will continue to be required for future development applications within the Moffett Park Specific Plan area.

Design Guidelines

The City of Sunnyvale established Citywide Design Guidelines in 1992 and Industrial Design Guidelines in 1993. The Industrial Design Guidelines apply to industrial uses in the M-S and M-3 zoning districts. Non-industrial uses permitted in the industrial zoning districts would be governed by the Citywide Design Guidelines. The Specific Plan includes the existing Citywide Design Guidelines and Industrial Design Guidelines in order to provide a sufficient level of development guidance for future projects within Moffett Park.

The Citywide Design Guidelines are intended to:

- Enhance the overall image of the City,
- Protect and preserve the existing character of the community,
- Communicate the image the community desires, and
- Achieve a higher design quality.

The Industrial Design Guidelines are intended to:

- Enhance and maintain the quality of the site and architectural design of the industrial areas of the City.

The guidelines are intended to supplement (not replace) the buildings standards in the City's Zoning Code. The Design Guidelines establish only the minimum acceptable design standards for the City. Future, individual projects within the Specific Plan area would be required to comply with the relevant

Citywide Design Guidelines and Industrial Design Guidelines (as incorporated into the Specific Plan) as a condition of project approval.

3.1.2 Environmental Impacts and Mitigation Measures

VISUAL CHARACTER OR QUALITY IMPACTS

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this analysis, an aesthetic impact is considered significant if the project would:

.

- *Have a substantial adverse effect on a scenic vista (refer to Section 10.0, Effects Found Not to be Significant);*

- *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway (refer to Section 10.0, Effects Found Not to be Significant)*

- *Substantially degrade the existing visual character or quality of the site and its surroundings.*

The following City of Sunnyvale General Plan Policies and Action Statements are used in addition to Appendix G of the State CEQA Guidelines as applicable thresholds to determine the level of environmental significance. Other Policies and Action Statements identified in the General Plan would not apply because they contain non-mandatory criteria (i.e. "encourage" or "consider" rather than "require", "avoid", or "insure"), and/or they do specifically relate to the proposed project.

Action Statement 2.5A.1a:	*Encourage unique and uniform roadway landscaping and, where possible, median improvements to distinguish the City's boundaries.*
Policy 2.5A.2:	*Ensure that new development is compatible with the character of special districts and residential neighborhoods.*
Policy 2.5C.1:	*Place a priority on quality architecture and site design which will enhance the image of Sunnyvale and create a vital and attractive environment for businesses, residents and visitors, and be reasonably balanced with the need for economic development to assure Sunnyvale's economic prosperity.*
Action Statement 2.5C.1c:	*Continue to insure that projects have amenities which make them attractive and that these features are not sacrificed to maximize development potential.*
Policy 2.5C.2:	*Review plans that will insure the design is compatible with the natural and surrounding built environment.*
Action Statement 2.5C.2c:	*Continue to require that sites be designed so that the building locations, driveways, parking, exterior mechanical equipment, auxiliary structures*

and service access areas are attractive and compatible with adjoining properties and the public right of way.

Action Statement 2.5C.2k: *Continue to require screening of exterior mechanical equipment.*

Policy 2.5C.3: *Ensure that site design creates places which are well organized, attractive, efficient and safe.*

Action Statement 2.5C.3h: *Continue to require full perimeter landscaping around parking lots wherever possible.*

Action Statement 2.5C.3k: *Continue to require visible and attractive artwork for new private development at gateways and on large commercial and industrial properties.*

Policy 2C.4: *Encourage quality architectural design, which improves the City's identity, inspires creativity and heightens individual as well as cultural identity.*

Policy 2C.5: *Ensure that buildings are appropriate to their context and designed to be compatible with surrounding properties and special districts.*

Action Statement 2.5C.5c: *Avoid buildings which do not have a similar scale or height as surrounding properties, except at gateways or for landmark structures.*

Action Statement 2.5C.5e: *Avoid building colors which are not compatible with adjoining properties or special districts.*

Action Statement 2.5C.4f: *Encourage building windows to have a shape and spacing consistent with the building style.*

Action Statement 2.5C.4I: *Encourage buildings with two or more stories to have architectural elements which creates a pedestrian scale on the ground level, such as variations in the textures and materials, differentiated piers and columns, recessed entries and windows, awnings or offset planes.*

Action Statement 2.5C.4j: *Avoid tall buildings which create a tunnel effect and where necessary, step the building back above the second level or stagger setbacks on the street.*

Land Use and Transportation Sub-Element

Action Statement N1.8.1: Require high quality site, landscaping, and building design for higher intensity industrial development.

IMPACT 3.1-A **Project implementation is intended to permanently enhance the visual character and quality of the Specific Plan area and it's surroundings. As the proposed Specific Plan includes the incorporation of the Citywide Design and Industrial Design Guidelines, respectively, applicable City Policies and Development Regulations as defined in Chapter 5 of the proposed Specific Plan would reduce potential impacts generated by implementation of the Specific Plan to levels that would be considered less than significant (Less Than Significant Impact).**

The Moffett Park planning area is currently underdeveloped, with future development, in accordance with the Specific Plan, anticipated to enhance the local infrastructure and built environment. The implementation of the Specific Plan could substantially alter the visual character of the project area by providing the mechanism by which the 1,156-acre area would be fully developed, and consist mostly of light industrial, office, research and development, small scale retail, hotel, restaurant, and other ancillary uses. The proposed project could involve the demolition of some of the existing buildings and facilities in the planning area and result in the phased construction of future individual development projects. The proposed Specific Plan is intended to comprehensively guide future development of the planning area to ensure that near-term development of individual parcels would not have a lasting adverse effect, but would, rather, be balanced with the potential demands and needs associated with the long-term development of the area. Long-term buildout of the Specific Plan area is intended to produce a mix of uses, and variety of building types.

Additionally, the Moffett Park planning area is comprised of several high-tech corporations and existing warehouse, manufacturing and light industrial uses, each with its own business identity. This difference in identity among Moffett Park users is reflected in the range of architectural styles for their respective buildings. Each building is clearly a separate entity with no indication that the connections between the buildings were planned or desired. Future development as directed in the Specific Plan is intended to create a more uniform business park setting, but may initially result in the juxtaposition of existing structures built using design standards that are not consistent with current design guidelines. For instance, the increase in FAR under the proposed Specific Plan could produce taller buildings. The increase in heights would accentuate the differences between each business identity.

Mature, tall, wide tree canopies dominate the visual character of the area. This aesthetic character is enhanced by the juxtaposition of individual buildings along the wide tree lined streets. Although the architectural style of each building may not relate to each other, the buildings should relate to the landscaping surrounding the buildings on each individual site. This character shall be maintained by the implementation of the mitigation measures indicated below. Further, parking lot landscaping is required for all development within the City of Sunnyvale. Parking lots, streets, pedestrian walkways, and public spaces would be landscaped with a variety of ornamental trees, shrubs, and flowers to enhance the visual character of the site. Landscaping would also be used to screen and soften views of parking lots and structures, service access areas, and mechanical equipment in the project area. A minimum of 20% of the parking lot area must be landscaped. According to the Sunnyvale Municipal Code Section 19.38.070 (Landscaping, Irrigation and Usable Open Space), minimum parking lot landscaping requirements include the following:

1. One tree shall be provided for every seven parking spaces; trees may be clustered.

2. Landscape islands with trees shall have minimum dimensions of five feet by five feet excluding curbs.

3. Landscape areas and parking islands, with or without trees, shall contain living ground cover or shrubs, unless it can be shown that ground cover is incompatible with the tree. Where living ground cover is unsuitable, the director of community development may allow porous, nonliving ground cover such as pebbles or tanbark.

   Landscape areas and parking islands shall be designed to integrate parking lot and site drainage in order to reduce storm water runoff velocities and minimize non-point source pollution.

4. A six-inch poured in place concrete curb with drainage "weep holes" shall separate landscaping from parking areas.

5. Wheel stops, properly installed with epoxy and metal dowels, are required when curbing does not adequately protect landscape areas.

The Specific Plan is intended to enhance the character of the Moffett Park area. In addition to specific plan policies, all of the Polices and Action Statements within the Community Design Sub-Element would be applicable to any new development, thereby further reducing visual impacts to a less than significant level.

Mitigation 3.1-A ***Mitigation is not required.***

LIGHTING AND GLARE IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, an aesthetic impact is considered significant if the project would:

- ❖ Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

The following City of Sunnyvale General Plan Policies and Action Statements are used in addition to Appendix G of the State CEQA Guidelines as applicable thresholds to determine the level of environmental significance. Other Policies and Action Statements identified in the General Plan would not apply because they contain non-mandatory criteria (i.e. “encourage” or “consider” rather than “require”, “avoid”, or “insure”), and/or they do specifically relate to the proposed project.

2.5C.2c. Continue to require that on-site lighting be energy efficient, unobtrusive, and located to minimize off-site glare while providing nighttime safety.

2.5C.3m. Continue to require site plans with good public visibility of entries, adequate night time lighting, safe on-site circulation systems and quick, unobstructed access routes for fire and police services.

IMPACT 3.1-B **Future development of structures and parking areas associated with the implementation of the Specific Plan could indirectly introduce new sources of light and glare into this urban setting. After compliance with the lighting standards of the Specific Plan (refer to Chapter 5, Development Regulations), potential impacts would be considered less than significant (Less Than Significant Impact).**

The proposed project area currently generates light and glare from indoor and outdoor lighting, security lighting, and parking lot lighting. Sunlight that is reflected off of reflective building surfaces (windows, aluminum siding, etc.), equipment, and vehicles also generates glare from the planning area and its surroundings. Glare impacts from sunlight reflections in the Moffett Park area are the most severe during the morning and evening hours when sunlight is directly reflected from glass windows and building surfaces onto motorists, pedestrians and bicyclists, and all persons traveling in or through the area.

Implementation of the proposed Specific Plan could indirectly introduce new sources of light and glare into the planning area. Specific sources of light may include interior and exterior lighting, security lighting, parking lot lighting, light and glare from headlights of the additional vehicles on adjacent roadways and vehicles that would turn into and out of new access driveways. Structures and equipment may also cause glare impacts on adjacent land uses. To ensure that impacts related to light and glare are reduced to levels considered less than significant, the proposed project would subscribe to existing City policies for community design and aesthetics, and would require implementation of the lighting guidelines of the Specific Plan, as defined in Chapter 5, Development Regulations.

Mitigation 3.1-B ***Mitigation is not required.***

3.1.3 Conclusion

Implementation of the proposed Specific Plan is anticipated to result in less than significant impacts.

3.2 AIR QUALITY

3.2.1 Environmental Setting

LOCAL AIR QUALITY

All major urban areas in California, including Sunnyvale are affected by air pollution, particularly by automobile emissions. Due to a high population and economic growth rate, vehicle use will continue to be an obstacle to improved air quality in the future.

Sunnyvale is located within the San Francisco Air Basin (SFAB). The prevailing winds in the City are influenced by the local marine environment, resulting in a typical on-shore/off-shore flow pattern. The winds are moderately channeled through the Santa Clara Valley by the hills to the east and west of the City of Sunnyvale. Winds within the City blow from the southeast during the morning hours and from the northwest during the afternoon and evening hours. Winds are lightest on average during fall and winter.

Air quality in the SFAB is monitored and regulated by the Bay Area Quality Management District (BAAQMD). To monitor pollutants, the BAAQMD operates a network of monitoring stations throughout the Bay Area. The closest multi-pollutant monitoring stations are located in San Jose and Redwood City. A single-pollutant monitoring station is located in neighboring Mountain View. The San Jose, Redwood City and Mountain View Monitoring Stations are located approximately 9, 15 and 3 miles from the proposed project site, respectively. Although the Mountain View Monitoring Station is closest to the proposed project site, its monitoring data was not used for this analysis because the station only monitored ozone and discontinued doing so in 1999. Additionally, the Redwood City Monitoring Station's monitoring data was not used due to distance. Therefore, the monitoring data that is most representative of the project site is from the San Jose Monitoring Station. Monitoring data from this station is included below in Table 3.2-1, *Local Air Quality Levels*.

According to the BAAQMD, the pollutants of concern are ozone (O_3), carbon monoxide (CO) and particulate matter less than 10 microns in diameter (PM_{10}). Table 3.2-1 indicates the amount of times that these pollutants have exceeded the state standard in the last five years. The Bay Area is a "non-attainment area" for O_3 by the state and national 1 hour standards and is "unclassified" by the national 8-hour standard. Additionally, the Bay Area is a "non-attainment area" for PM_{10} by the state 24 hour standard and is "unclassified" by the national standard.

Table 3.2-1
Local Air Quality Levels
(As measured at the San Jose 4th Street Monitoring Station)

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[1] Concentration	Days (Samples) State/Federal Std. Exceeded
Carbon Monoxide (CO)	9 ppm for 8 hours	9 ppm for 8 hours	1997 1998 1999 2000 2001	6.1 6.3 6.3 7.0 5.1	0/0 0/0 0/0 0/0 0/0
Ozone (O_3)	0.09 ppm for 1 hour	0.12 ppm for 1 hour	1997 1998 1999 2000 2001	0.09 0.15 0.11 0.07 0.11	0/0 4/1 3/0 0/0 2/0
Nitrogen Oxides as Nitrogen Dioxide NO_2)	0.25 ppm for 1 hour	0.053 ppm annual average	1997 1998 1999 2000 2001	0.12 0.08 0.13 0.11 0.11	0/0.03 0/0.03 0/0.03 0/0.03 0/0.02
Sulfur Oxides as Sulfur Dioxide (SO_2)	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 80 ug/m^3 (0.03 ppm) annual average	1997 1998 1999 2000 2001	NM NM NM NM NM	NM NM NM NM NM
Fine Particulate Matter (PM_{10})	50 ug/m for 24 hours	150 ug/m for 24 hours	1997 1998 1999 2000 2001	78.0 92.0 114.4 76.1 76.7	3/0 3/0 5/0 7/0 4/0

Maximum concentration is measured over the same period as the California Standard
NM=Not Measured ppm = parts per million ug/m^3 = micrograms per cubic meter

Source: CARB Air Data web site: www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/start, 1996 to 2000.

EXISTING CONDITIONS

The existing Specific Plan area contains approximately 1,156 acres of land, with approximately 15.6 million square feet of existing development. The existing land use within the proposed Specific Plan area is Industrial, as specified under the existing Sunnyvale General Plan. Emissions from existing Specific Plan area land uses were modeled using the URBEMIS7G emissions modeling program. Table 3.2-2, *Existing Specific Plan Area Emissions* indicates emissions that are generated by existing Specific Plan area land uses. As indicated in Table 3.2-2, the existing land uses exceed the BAAQMD significance thresholds for VOC (ROG), NO_x, CO and PM^{10}.

Table 3.2-2
Existing Project Site Emissions

	VOC (ROG)	NO_x	CO	PM_{10}
Unmitigated Construction Emissions (lbs/day)	N/A	N/A	N/A	N/A
Unmitigated Area Source Emissions (lbs/day)	0.2	0.8	1.0	0.0
Unmitigated Mobile Source Emissions (lbs/day)	1,867.48	2,295.7	15,167.4	730.8
Total Unmitigated Emissions (lbs/day)	*1,867.5*	*2,296.5*	*15,167.4*	*730.8*
BAAQMD Threshold (lbs/day)	80	80	550*	80
Are Thresholds Exceeded?	Yes	Yes	Yes	Yes

Source: URBEMIS 7G Air Emissions Model and BAAQMD CEQA Guidelines
* Or cause roadway segment operating at LOS D, E or F to decline to LOS D, E, F or 3, or cause project traffic increase on local roadways to 10% or more (exempt if project vehicle contribution is less than 100 vehicles per hour).

AIR QUALITY STANDARDS

The Federal Clean Air Act of 1970 and Subsequent Amendments (CAA)

The 1970 Clean Air Act of 1970 (CAA) was the first piece of legislation that gave the U.S. Environmental Protection Agency (EPA) authority to set federal primary and secondary ambient air quality standards. Primary, or health-based standards are set at levels necessary to protect the public health. Secondary the public from air pollution effects such as crop damage, visibility reduction, soiling, nuisances, etc. Amended in 1977 and 1990, the CAA required the EPA to establish federal primary standards for six several major air pollutants including: ozone (O_3), carbon monoxide (CO), nitrogen oxide (NO_x), sulfur dioxide (SO_2) and suspended particulate matter (PM_{10}).

The 1988 California Clean Air Act (CCAA)

The California Clean Air Act of 1988 expanded the scope and accelerated the pace of air pollution control efforts in California. The CCAA was signed into law on September 30, 1988, became effective on January 1, 1989, and was amended in 1992. Also known as the "Sher Bill" [Assembly Bill (AB) 2595], the CCAA established a legal mandate to achieve health-based State air quality standards at the earliest practicable date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources. The Act also gives air districts such as the BAAQMD new authority to regulate indirect sources. Each district plan is to achieve a five percent annual reduction (averaged over consecutive three-year periods) in district-wide emissions of each non-attainment pollutant or its precursors including the effect of any additional development within the region. A strict interpretation of the CAAA "no net" increase prohibition suggests that any general development within the region, no matter how large or small, may have a significant, project-specific air quality impact unless the development-related emissions are offset by concurrent emissions reduction elsewhere within the airshed. Any planning effort for air quality attainment would thus need to consider both State and Federal planning requirements.

The Bay Area Clean Air Plan 2000 (CAP)

The California Air Resources Board (CARB) has established a state, health-based, air quality standard for ozone. Under the CCAA, areas not in compliance with this standard must prepare an ozone reduction plan. All major metropolitan areas within the State of California, including the Bay Area, must comply with this standard and therefore must submit a CAP every three years. Pursuant to the CCAA and subsequent amendments, the BAAQMD prepared the 2000 CAP for adoption by the Board on December 20, 2000. The main objective of the CAP is to reduce emissions of certain air pollutants that lead to the formation of ozone, or "smog", in the lower atmosphere. Other air quality issues are included in this plan for informational purposes. The CAP represents a comprehensive strategy to reduce ozone emissions from area and mobile sources. The CAP includes specific measures that encourage cities and counties to develop and implement local plans, policies and programs to reduce auto use and improve air quality.

Under the CCAA nonattainment classifications, the Bay Area is classified as a "serious" air basin for O_3. (The State classification system for nonattainment areas uses the designations moderate, serious, severe, and extreme.) The Bay Area has several monitoring stations to measure and record ambient air quality. Ambient ozone levels meet state and national standards 99% of the time, however, since the Bay Area is considered a non-attainment zone, air quality improvement measures are required. Since the passage of the CCAA, in 1988, the Bay Area peak concentrations of ozone diminished an average of 1.2 percent per year.

CRITERIA POLLUTANTS

Ozone (O_3)

Ozone is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere, often referred to as photochemical smog. Ozone near the ground is an air pollutant. The same chemical is the stratosphere, about 10 miles above the earth's surface plays a beneficial role in protecting us from excessive ultraviolet radiation. Surface ozone and stratospheric ozone are independent phenomena. The known health effects of ozone are eye irritation and damage to lung tissues. Ozone also damages materials such as rubber, and may damage plants and crops.

Carbon Monoxide (CO)

Carbon monoxide is a clear, odorless gas. The principal emissions of this pollutant occur as a component of vehicular tailpipe effluence. Consequently, at any time of the day and in any season of the year the greatest concentrations are usually found near roadways. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduced the amount of oxygen in the blood. This deprivation causes heart difficulties in people with chronic diseases, reduces lung capacity and impairs mental abilities.

Nitrogen Oxide (NO_x)

Nitrogen dioxide contributes to other pollution problems, including high concentrations of particulate matter, poor visibility and acid disposition. Nitric Oxide (NO), a colorless odorless gas, is one of the oxides of nitrogen that results from combustion. NO is converted into Nitrogen Dioxide in the presence of sunlight. Nitrogen Dioxide (NO_2) is a reddish-brown toxic gas that reduces visibility and is a pulmonary irritant.

Sulfur Dioxide (SO_2)

Sulfur dioxide is a colorless gas with a pungent, irritating odor. SO_2 damages and irritates lung tissue, and accelerates corrosion of metals. SO_2 irritates the respiratory tract and can injure lung tissue when combined with fine particulate matter. Sulfates reduce visibility and therefore, the level of sunlight.

Suspended Particulate Matter (PM_{10})

Suspended particulate matter consists of solid and liquid particulates of dust, soot, aerosols, and other matter which are small enough to remain suspended in air for a long period of time. Man-made sources include combustion, automobile exhausts, field burning, factory emissions and travel on both paved and unpaved roads. A portion of the particulate matter in urban atmospheres is also the result of photochemical processes. The ambient air quality standards are for suspended particulate matter less than 10 microns in diameter, designated PM_{10}. The known effects of high concentrations on humans include aggravation of chronic disease and heart/lung disease symptoms. Non-health effects include reduced visibility and soiling of surfaces.

ODORS

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local government and BAAQMD. Any project that would expose members of the public to objectionable odors would be deemed to have a significant impact. A wastewater treatment plant and the solid waste transfer station are located along the northern boundary of the Specific Plan area and minimally contribute localized odors. Additionally, the salt evaporation ponds and the San Francisco Bay to the north of the proposed project area are large odor sources, and at times create hydrogen sulfide odors that can be detected 5-6 miles downwind. Implementation of the proposed Specific Plan would not create significant new odors relative to these existing facilities, although the proposed increase in development intensity would expose more people to existing odors.

SENSITIVE RECEPTORS

Sensitive populations (i.e., children, senior citizens and accurately or chronically ill people) are more susceptible to the effects of air pollution than are the general population. Sensitive populations (sensitive receptors) who are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, parks, hospitals, clinics, rehabilitation centers, convalescent homes, and retirement homes. Sensitive receptors locations were identified in the vicinity of the Specific Plan area. Table 3.2-3, *Sensitive Receptors* includes land uses in the vicinity of the Specific Plan area that would be considered sensitive receptors. The distances shown in Table 3.2-3 are approximate measurements measured from the intersection of Geneva Drive and Java Drive (the approximate center of the Specific Plan area).

TRANSPORTATION DEMAND MANAGEMENT

All major urban areas in California, including Sunnyvale are affected by air pollution, particularly by automobile emissions. Since the early 1990's, the Silicon Valley has experienced tremendous employment growth, becoming one of the nation's largest high-technology centers. The economic development of the Silicon Valley has caused population growth throughout the southern Bay Area and in nearby Central

Valley communities. As a result, the regions streets and highways have become overloaded with commuters traveling to the large employment centers of the Valley. Due to a high population and economic growth rate, vehicle use will continue to be an obstacle to improved air quality in the future.

Table 3.2-3
Sensitive Receptors

Land Use	Description/Name	Distance in Miles	Direction
Residential	Single family residential interspersed with multi family residential located immediately adjacent to the south of State Highway 237	0.5	South
	Cogswell College dormitories (proposed)		
Schools, Playgrounds and Childcare Centers	Rainbow Montessori	2.0	South
	California Young World	1.5	Southeast
	Lakewood Elementary	1.5	South
	San Miguel Elementary	1.75	South
	Bishop Elementary	2.0	South
	Kings Academy	2.0	South/Southeast
Parks	Twin Creeks Sports Complex/Sunnyvale Baylands Park	Adjacent	North
	Orchard Gardens	0.75	Southwest
	Columbia Park	1.0	South
	Fair Oaks Park	1.5	South
	Lakewood Park	1.0	Southeast
	Encinal Park	1.75	East/Southeast
	Martin Murphy Jr. Park	2.0	Southeast
Hospitals, Clinics, Rehabilitation Centers, Convalescent Homes, and Retirement Homes	Lastreto Manor (Extended Care Facility)	2.0	South

Source: http://maps.yahoo.com/ and The Thomas Guide 1997 Golden Gate Street Guide and Directory, Thomas Bros. Maps, August 2002.

According to a survey of Bay Area commute patterns, the average one-way commute distance for Santa Clara County residents was 14.2 miles in the year 2000. On average, it took 29.3 minutes for Santa Clara County residents to travel one-way to work. Travel time to work has increased by approximately 28 percent since 1993. At the same time, the average vehicle speed of commuters has dropped by approximately 5 miles per hour from 34.1 in 1993 to 29.1 in the year 2000. The majority of Santa Clara County residents (77.2 percent) drive alone to and from work, and 15.3 percent carpool. Only 4.0 percent of the residents use public transit, and the remaining 3.5 percent travel to work by other modes, such as bicycling, walking, or telecommuting. The reasons why the majority of Santa Clara County commuters drive alone to work are convenience, abundance of free parking, and limited transit services. In addition, many employees that work in the technology industry work long and irregular hours. These working conditions are generally not conducive to carpooling and transit.

Metropolitan Transportation Commission (MTC) continues to administer the regional ridesharing program. The increasing problem of traffic congestion in the Silicon Valley has generated numerous concerns related to the quality of life and economic stability of the region. To address the issues related to traffic congestion and air quality, several employers and government officials are adopting Transportation Demand Management (TDM) programs to improve the efficiency of the existing transportation system. TDM is a grouping of techniques, policies, and programs that are designed to

minimize traffic congestion and encourage the use of public transit, carpooling, bicycling and walking as attractive modes of transportation to work.

Since 1999, the City of Sunnyvale has adopted a total of seven TDM plans, four of which are in the Moffett Park area. The City does not have a TDM ordinance that requires employers to prepare and adopt the plans. However, the implementation of a TDM program is part of the City's discretionary review criteria for a Use Permit needed to exceed the 35 percent floor area ratio (FAR) in industrial zones. Several employers have applied for Use Permits to exceed the 35 percent FAR, and have therefore prepared and adopted TDM plans. The TDM plans require that the strategies and approaches be monitored to determine their success. At this point in time, the success of the plans has not been monitored because they have been recently adopted and many of the office projects have not been completed to date.

3.2.2 Environmental Impacts and Mitigation Measures

PLAN CONSISTENCY IMPACTS

Thresholds of Significance

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, an air quality impact is considered significant if the project would:

- *Conflict with or obstruct implementation of the applicable air quality plan.*

BAAQMD

The BAAQMD notes that consistency with the Bay Area 2000 CAP determines whether the project would create significant air quality impacts. Consistency with the CAP involves assessing whether transportation control measures (TCMs) contained in the CAP are being implemented with the project. There are 19 TCMs outlined in the CAP.

City of Sunnyvale General Plan

Policy A.2 *Require new development to utilize site planning to protect citizens from unnecessary exposure to air pollutants.*

Policy B.2 *Assist employers in meeting the requirements of the Transportation Demand Management (TDM) plans for existing and future large employers, and explore requiring TDM Plans for future employment centers.*

Policy C-1 *The City should actively participate in air quality planning.*

Policy C4.2.3 *Develop incentive programs to reduce parking demand, support alternative transportation, and reduce peak period traffic.*

Policy R1.9 *Support flexible and appropriate alternative transportation modes and transportation system management measures that reduce reliance on the automobile and serve changing regional and citywide land use and transportation needs.*

IMPACT 3.2-A **Plan Consistency Impacts: Implementation of the proposed Moffett Park Specific Plan is consistent with applicable air quality plans and policies. (Less Than Significant Impact).**

Since the early 1990s, the Silicon Valley has experienced tremendous employment growth, becoming one of the nation's largest high-technology centers. The economic development of the Silicon Valley has caused population growth throughout the southern Bay Area and in nearby Central Valley communities. As a result, the region's streets and highways have become overloaded with commuters traveling to the large employment centers of the Valley.

According to a survey of Bay Area commute patterns, the average one-way commute distance for Santa Clara County residents was 14.2 miles in the year 2000. On average, it took 29.3 minutes for Santa Clara County residents to travel one-way to work. Travel time to work has increased by approximately 28 percent since 1993. At the same time, the average vehicle speed of commuters has dropped by approximately 5 miles per hour from 34.1 in 1993 to 29.1 in the year 2000.

The majority of Santa Clara County residents (77.2 percent) drive alone to and from work, and 15.3 percent carpool. Only 4.0 percent of the residents use public transit, and the remaining 3.5 percent travel to work by other modes, such as bicycling, walking, or telecommuting. The reasons why the majority of Santa Clara County commuters drive alone to work are convenience, abundance of free parking, and limited transit services. In addition, many employees that work in the technology industry work long and irregular hours. These working conditions are generally not conducive to carpooling and transit.

Although the Metropolitan Transportation Commission (MTC) continues to administer the regional ridesharing program, the increasing problem of traffic congestion in the Silicon Valley has generated numerous concerns related to the quality of life and economic stability of the region. To address the issues related to traffic congestion and air quality, several employers and government officials are adopting Transportation Demand Management (TDM) programs (also discussed above under plan consistency) to improve the efficiency of the existing transportation system. TDM is a grouping of techniques, policies, and programs that are designed to minimize traffic congestion and encourage the use of public transit, carpooling, bicycling and walking as attractive modes of transportation to work.

As discussed above, since 1999, the City of Sunnyvale has adopted a total of seven TDM plans. The City does not have a TDM ordinance that requires employers to prepare and adopt the plans. However, the preparation of a TDM program is part of the City's review criteria for a Use Permit to exceed the 35 percent floor area ratio (FAR) in industrial zones. Several employers have applied for Use Permits to exceed the 35 percent FAR, and have therefore prepared and adopted TDM plans.

There are six (6) office projects in Moffett Park that have prepared TDM plans as a part of the application process. These office projects are listed below:

- Mathilda Research Center (Juniper Networks)
- Building C/1220 Mathilda Avenue (Juniper Networks)

- Moffett Park Office Project
- Yahoo! Headquarters
- Network Appliance Corporate Campus
- Juniper Networks Corporate Campus

The BAAQMD CAP is the air quality plan that is applicable to the Specific Plan area. Consistency with the CAP is determined by the assessment of whether or not the local agency (the City in this case) is implementing the CAP transportation control measures (TCMs). Local agencies that do not demonstrate reasonable efforts to implement the TCMs would be considered inconsistent with the regional air quality plan (CAP). Pages 15 through 17 of the CAP cite the TCMs that should be implemented by local governments. Those TCMs are shown below in Table 3.2-4, *Clean Air Plan Consistency*. The TDM plans mentioned above respond to the requirement of implementing the TCMs. In November of 1990 the City of Sunnyvale adopted its TDM Ordinance in Chapter 10.60 of its Municipal Code. Chapter 10.60 of the City of Sunnyvale Municipal Code states: "The purpose of this chapter is to promote the development of transportation demand management programs at employer work sites in order to reduce traffic impacts and improve air quality." Additionally, Chapter 10.60 states, "Within the city of Sunnyvale, the implementation of trip reduction and travel demand requirements, pursuant to Government Code Section 65089.3, shall be satisfied through the administration, implementation and enforcement by the Bay Area Air Quality Management District of District Regulation 13, Rule 1 (Trip Reduction Requirements for Large Employers). (Ord. 2468-94 § 3)." In compliance with the City's TDM Ordinance, the proposed Specific Plan implements the applicable BAAQMD TCMs. Table 3.2-4 indicates the applicable TCMs and their consistency with the proposed Specific Plan.

Similar to the CAP, the Santa Clara County Congestion Management Program (CMP) sets transportation performance standards, and indicates how local jurisdictions will meet those standards through Capital Improvement Programs, land use strategies and other actions designed to reduce congestion and improve air quality. The CMP is related, but not statutorily linked to the CCAA. Under the CMP, cities, such as Sunnyvale, that have a noticeable decline in roadway levels of service (LOS) on roadway segments or intersections are required to adopt innovative and comprehensive solutions to LOS deficiencies rather than be held to the strict standards of the CMP. Cities that have implemented Deficiency Plans for roadways or intersections that exceed CMP LOS acceptable levels are considered consistent with the CMP. Based on the fact that most of the roadways and intersections serving the proposed Specific Plan area are not able to attain the CMP acceptable LOS, the City of Sunnyvale has developed Deficiency Plans for these intersections. Considering this the City (including the Specific Plan area) are in compliance with the CMP.

Table 3.2-4
Clean Air Plan Consistency

Transportation Control Measure	Requirement	Specific Plan Consistency
TCM 1	Support Voluntary Employer-Based Trip Reduction Programs	As a condition of development approval, the proposed Specific Plan would require future projects exceeding base FAR to develop a Transportation Demand Management Plan (TDM plan). The TDM plan will be required to include site design measures, program/service measures and implementation mechanisms.
TCM 2	This TCM is not included in the 2000 Clean Air Plan	Not Applicable
TCM 3	Improve Areawide Transit Service	The proposed Specific Plan would include incentives for future projects to be located near the Santa Clara VTA light rail line to encourage alternative transportation utilization.
TCM 4	Improve Regional Rail Service	See TCM 3
TCM 5	Improve Access to Rail and Ferries	See TCM 3
TCM 6	Improve Intercity Rail Service	Not Applicable
TCM 7	Improve Ferry Service	Not Applicable
TCM 8	Construct Carpool/ Express Bus Lanes on Freeways	Not Applicable
TCM 9	Improve Bicycle Access and Facilities	The Specific Plan will be consistent with the Citywide Bicycle Master Plan
TCM 10	Youth Transportation	Not Applicable
TCM 11	Install Freeway / Arterial Metro Traffic Operations Systems	Not Applicable
TCM 12	Improve Arterial Traffic Management	The proposed Specific Plan would implement roadway and intersection improvements that would include roadway widening, adding/reconfiguring intersection approach and departure lanes and adjusting signal timing.
TCM 13	Transit Use Incentives	See TCM 3
TCM 14	Improve Rideshare / Vanpool services and incentives	See TCM 1
TCM 15	Local Clean Air Plans Policies and Programs	The Specific Plan would guide development within the plan area in a manner that would be consistent with the local clean air plan, policies and programs.
TCM 16	Intermittent Control Measures / Public Education	Not Applicable
TCM 17	Construct Demonstration Projects	Not applicable
TCM 18	Transportation Pricing Reform	Not Applicable
TCM 19	Pedestrian Travel	As a condition of development approval, the proposed Specific Plan would require future projects to develop a sidewalks and would encourage development of inter- and intra parcel pedestrian throughways. Additionally, the Specific Plan would encourage future projects to consider utilizing the water district easement right of way.
TCM 20	Traffic Calming	Not Applicable

Source: Bay Area 2000 Clean Air Plan, December 20, 200
RBF Consulting, August 2002

As shown, the proposed Specific Plan would implement the applicable TCMs under the CAP through implementation of the TDM plan, as required. Additionally it would be in compliance with the CMP under the City's roadway and intersection deficiency plans and would be consistent with the General Plan

inasmuch as the City is providing oversight of the project. Based on this, implementation of the proposed Specific Plan would be consistent the applicable air quality plans and less than significant impacts would occur.

Mitigation 3.2-A ***None Required (Less Than Significant Impact)***

CONSTRUCTION IMPACTS

Thresholds of Significance

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, an air quality impact is considered significant if the project would:

- *Result in significant construction-related air quality impacts?*
- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).*

BAAQMD

The determination of significance with respect to construction emissions is based on a consideration of the control measures to be implemented. From the BAAQMD's perspective, quantification of construction emissions is not necessary (although a Lead Agency may elect to do so). However, should the lead agency wish to quantify emissions based on the size and nature of construction activities, the BAAQMD provides generalized U.S. EPA emission factor of 51 lbs/day for uncontrolled construction related PM10 emissions. There are no generalized lbs/day emissions factors for VOC (ROG), NOX and CO. However, even if the above PM10 emissions lbs/day emissions factors are exceeded, if all of the appropriate BAAQMD feasible measures to control construction PM_{10} emissions are implemented (refer to impacts analysis for a description of these measures), air pollutant emissions from construction activities are considered to be less than significant. If all of the appropriate measures are not implemented, then the residual construction impacts would be considered significant.

Relevant General Plan Policies and Action Statements

None are applicable to short-term construction activity.

IMPACT 3.2-B **Construction Related Impacts: Future project development under the proposed Moffett Park Specific Plan may result in temporary construction related air quality impacts. (Less than Significant Impact With Mitigation).**

Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Fine particulate matter (PM_{10}) is the pollutant of greatest concern with respect to construction activities. PM_{10} emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces. Construction emissions of PM_{10} can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions and other factors. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction.

The Bay Area Air Quality Management District's (BAAQMD) approach to CEQA analysis of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. Generally any type of construction can have significant impacts related to PM_{10} emissions. There are three progressive levels of construction emission mitigation: Basic Control Measures apply to all construction projects. Enhanced Control Measures apply to site greater than four acres; and Optional Control Measures apply to large construction sites.

Based on the difficulty in ascertaining the nature and scope of future construction scenarios under the proposed Specific Plan (due to the numerous parcels, long buildout period, uncertain timing and extent of individual construction), it is speculative to quantify construction-related emissions. For illustrative purposes, a representative emissions model was run on the URBEMIS7G program. The model assumptions included a building size of 98,069 square feet and lot size of 331,056 (typical existing building and lot sizes as indicated in Table 3.1 of this EIR). The graded area was modeled at 10 acres using a typical grading and construction vehicle mix for flat terrain. Although future project development under the proposed Specific Plan may include projects that are either smaller or larger in size and scope and separate projects may be constructed concurrently, these assumptions provide a representative view of construction related emissions. Table 3.2-5, *Representative Construction Emissions* includes emissions that would be generated for a project of the above-mentioned size and scope.

As it is impossible to ascertain the size and scope of future projects under the Specific Plan, the three Control Measures would be required where applicable. These measures are listed as mitigation measures which would be required for all new development within the Specific Plan. With implementation of these mitigation measures, less than significant construction related air quality impacts would occur.

Table 3.2-5
Representative Construction Emissions

	VOC (ROG)	NO_x	CO	PM_{10}
Unmitigated Construction Emissions (lbs/day)	176.5	186.7	0.0	38.8
BAAQMD Threshold (lbs/day)	N/A	N/A	N/A	51
Are Thresholds Exceeded?	N/A	N/A	N/A	No

Source: URBEMIS 7G Air Emissions Model (October 2000) and BAAQMD CEQA Guidelines pgs. 28-29 (April 1996, Revised 1999).

Mitigation 3.2-B1 ***All new development shall implement the following control measures at all construction sites.***

- ***Water all active construction areas at least twice daily.***
- ***Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.***
- ***Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.***
- ***Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.***
- ***Utilize crushed rock driveways***

(Less than Significant Impact With Mitigation)

Mitigation 3.2-B2 ***All new development of four or more acres shall implement the following control measures in addition to the measures listed above.***

- ***Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).***
- ***Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)***
- ***Limit traffic speeds on unpaved roads up to 15 mph.***
- ***Install fiber rails or other erosion control measures to prevent silt runoff to public roadways.***
- ***Replant vegetation in disturbed areas as quickly as possible.***

(Less than Significant Impact With Mitigation)

Mitigation 3.2-B3 ***All new development that is large in area, located near sensitive receptors or which for any other reason may warrant additional emissions reduction shall implement the following control measures in addition to the measures listed above.***

- ***Install wheel washers for all exiting trucks, or wash off tires or tracks of all trucks and equipment leaving the site.***
- ***Install wind breaks, or plant trees/vegetative wind breaks at the windward side(s) of construction sites.***
- ***Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.***
- ***Limit the area subject to excavation, grading and other construction activity at any one time.***

(Less than Significant Impact With Mitigation)

OPERATIONAL IMPACTS

Thresholds of Significance

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, an air quality impact is considered significant if the project would:

- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation.*
- *Expose sensitive receptors to substantial pollutant concentrations.*
- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).*

In addition to the CEQA guidelines, the BAAQMD has outlined thresholds of significance for criteria pollutant concentrations. These are thresholds are listed below in Table 3.2-6, *BAAQMD Thresholds of Significance for Project Operations*.

Table 3.2-6
BAAQMD Thresholds of Significance for Project Operations

Pollutant	Lbs/Day	Tons/Year
VOC (ROG)	80	15
NO_X	80	15
PM_{10}	80	15
CO	550	N/A

Source: BAAQMD CEQA Guidelines, April 1996 (Revised December 1999).

In addition to the lbs/day thresholds cited above, the BAAQMD has trigger thresholds applicable to CO emissions that require projects to perform localized CO modeling. These trigger thresholds include the following:

- *Project traffic would impact intersections or roadway links operating at Level of Service (LOS) D, E, F or would cause LOS to decline to D, E, F or (3).*
- *Project traffic would increase traffic volumes on nearby roadways by 10% or more.*
- *Project would contribute to CO concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours and 20 ppm for an hour.*

Relevant General Plan Policies and Action Statements

None are applicable to short-term operational activity.

IMPACT 3.2-C **Operational Air Quality Impacts: Future area source and vehicular emissions under the proposed Moffett Park Specific Plan may result in operational air quality impacts. (Significant and Unavoidable Impact).**

Operational air quality impacts are generated by area sources and mobile sources. Area source emissions are generated from such activities as heating, cooling, offsite and on-site power generation, use of aerosol chemicals and propellants and gases. With respect to the proposed Specific Plan, the greatest potential for air quality impacts would result from mobile source emissions (vehicle traffic). Mobile source emissions include carbon dioxide, reactive organic gases, nitrogen dioxide and particulates. Future development in the Moffett Park area under the existing City of Sunnyvale General Plan would include approximately 18,304,761 square feet of buildings and 138,324 average daily trips (ADT). This would represent a 5,850,008 square foot (46 percent) increase of building space and 62,833 (83 percent) increase in ADT. As shown below in Table 3.2-7, *General Plan Buildout Operational Air Emissions*, the Moffett Park area would generate 946.4 lbs/day of VOC (ROG), 2,619.2 lbs/day of NO_X, 9,710.6 lbs/day of CO and 1,294.4 lbs/day of PM_{10}. This represents a decrease of 921.1 lbs/day of VOC (ROG) and 5,456.8 lbs/day of CO and an increase of 322.7 lbs/day of NO_X and 563.6 lbs/day of PM_{10} (the decrease is due to projected improvements in vehicle exhaust emission controls between now and project Buildout).

Future development in the Moffett Park area under the proposed Moffett Park Specific Plan would include approximately 24.3 million square feet of buildings and 163,324 average daily trips (ADT). This would represent an approximately 8.7 million square foot (56 percent) increase of building space and 88,415 (117 percent) increase in ADT over existing conditions. As shown below in Table 3.2-8, *Specific Plan Operational Air Emissions*, the proposed Specific Plan would generate 1,144.2 lbs/day of VOC (ROG), 3,100.0 lbs/day of NO_X, 11,493.8 lbs/day of CO and 1,532.2 lbs/day of PM_{10}. This represents a decrease of 713.3 lbs/day of VOC (ROG) and 3,673.6 lbs/day of CO and an increase of 803.5 lbs/day of NO_X and 801.4 lbs/day of PM_{10} as compared to existing conditions. Comparison between future development under the City General Plan and proposed Specific Plan conditions indicates that the proposed Specific Plan would generate greater emissions than generated under the General Plan.

Table 3.2-7
General Plan Buildout Operational Air Emissions

	VOC (ROG)	NO_x	CO	PM_{10}
Unmitigated Area Source Emissions (lbs/day)	0.1	0.8	0.6	0.0
Unmitigated Mobile Source Emissions (lbs/day)	946.3	2,618.4	9,710.0	1,294.4
Total Unmitigated Emissions (lbs/day)	*946.4*	*2,619.2*	*9,710.6*	*1,294.4*
BAAQMD Threshold (lbs/day)	80	80	550*	80
Are Thresholds Exceeded?	Yes	Yes	Yes	Yes

Source: URBEMIS 7G Air Emissions Model and BAAQMD CEQA Guidelines
* Or cause roadway segment operating at LOS D, E or F to decline to LOS D, E, F or 3, or cause project traffic increase on local roadways to 10% or more (exempt if project vehicle contribution is less than 100 vehicles per hour).

Table 3.2-8
Specific Plan Operational Air Emissions

	VOC (ROG)	NO_x	CO	PM_{10}
Unmitigated Area Source Emissions (lbs/day)	0.1	0.8	0.6	0.0
Unmitigated Mobile Source Emissions (lbs/day)	1,144.1	3,099.2	11,493.2	1,532.2
Total Unmitigated Emissions (lbs/day)	*1,144.2*	*3,100.0*	*11,493.8*	*1,532.2*
BAAQMD Threshold (lbs/day)	80	80	550*	80
Are Thresholds Exceeded?	Yes	Yes	Yes	Yes

Source: URBEMIS 7G Air Emissions Model and BAAQMD CEQA Guidelines
* Or cause roadway segment operating at LOS D, E or F to decline to LOS D, E, F or 3, or cause project traffic increase on local roadways to 10% or more (exempt if project vehicle contribution is less than 100 vehicles per hour).

Implementations of the appropriate TCM under the TDM would serve to reduce Specific Plan related operational emissions. However, considering the fact that it is not possible to ascertain the character and scope of future projects within Moffett Park and the fact that the Specific Plan represents greater emissions output over that of the General Plan, operational emissions with respect to the proposed Specific Plan would generate a significant and unavoidable impact.

Mitigation 3.2-C1 ***Where possible, the proposed Moffett Park Specific Plan shall identify appropriate pedestrian "walkthrough" locations to provide direct, safe, attractive pedestrian access from project to transit stops and adjacent development (Significant and Unavoidable Impact).***

Mitigation 3.2-C2 ***As a condition of project approval for future development under the Moffett Park Specific Plan, pedestrian access ways allowing travel within and through parcels shall be implemented, as appropriate, on a per project basis at the discretion of the Community Development Director (Significant and Unavoidable Impact).***

IMPACT 3.2-D **Localized CO Impacts: Future Specific Plan related vehicle trips would expose sensitive receptors to substantial CO concentrations near intersections serving the Specific Plan area. (Less Than Significant Impact).**

As discussed above, the BAAQMD requires localized CO modeling "hotspot analysis" for projects that would contribute traffic to intersections that currently operate at D, E or F. Many of the intersections that serve the Moffett Park area are currently operating at D, E or F. Based on this, the worst-case intersection was identified and analyzed for impacts related to the proposed Specific Plan. Identification of the worst-case intersection is based on intersections with LOS F that would occur under all of the conditions analyzed in the Specific Plan Traffic Impact Study (TIA) and their location to sensitive receptors.

The worst case intersection is the Lawrence Expressway and Reed Avenue / Monroe Street intersection. The location and identification of the sensitive receptors near this intersection are shown on Exhibit 3.2-1, *Receptor Location Map*. These sensitive receptors are located within 125 meters (410 feet) to the west-

southwest and west-northwest of the intersection. Table 3.2-9, *Results of Localized CO Modeling* includes the CO concentrations at the sensitive receptor locations.

Table 3.2-9
Results of Localized CO Modeling

Receptor Identification	CO Concentration Per Condition (In Parts Per Million)				
	Ambient (Background) Concentration	Existing	General Plan	Preferred Alternative (Specific Plan)	Cumulative
1	8.4	8.9	8.8	8.9	8.8
2	8.4	8.9	8.8	8.9	8.8
3	8.4	8.9	8.9	8.9	8.9
4	8.4	9.0	8.9	9.0	8.9
5	8.4	8.9	8.9	8.9	8.9
6	8.4	9.0	9.0	9.0	9.0
7	8.4	8.9	8.9	8.9	8.9
8	8.4	8.9	8.8	8.9	8.8
9	8.4	8.9	8.8	8.9	8.8

Source: RBF Consulting, August 2002

As shown in Table 3.2-8, none of the modeled sensitive receptors would experience a CO increase of more than 0.6 ppm for all conditions including that of the proposed Specific Plan. Considering this, localized CO increase at project-affected intersections (as exemplified by the worst case intersection) would generate a less than significant impact.

Mitigation 3.2-D ***None required (Less Than Significant Impact).***

3.2.3 Conclusion

With the implementation of the mitigation measures identified in this section, potential impacts of the proposed Specific Plan on air quality would be reduced to less than significant levels.

3.3 BIOLOGICAL RESOURCES

3.3.1 Environmental Setting

The project area is defined as an urban area. No biological resources were identified in the General Plan. The Moffett Park planning area is currently developed, with an urban character. Biological resources proximate to the Moffett Park area include riparian marsh habitat and the San Francisco Bay, which provide habitat for fish, wildlife and vegetation. However, the riparian habitat does not traverse the project area. In addition, the project area is not located within a habitat conservation plan area. The proposed project would not have an effect on any of the aforementioned biological resources.

Nonetheless, because the San Francisco Bay Area is home to several species of plants and animals found nowhere else in the world, special status species are provided stringent protective measures in order to safeguard against additional species and habitat loss. According to the Santa Clara Valley Water District (SCVWD), implementation of the proposed Moffett Park Specific Plan could potentially impact the following species:

- Burrowing Owl – Federal Species of Concern
- Salt Marsh Harvest Mouse – State and Federally Endangered
- Western Snowy Plover – Federally Threatened
- Salt Marsh Wandering Shrew – Federal Species of Concern

WILDLIFE: WESTERN BURROWING OWLS

Burrowing owls are active during the day and are commonly seen guarding the entrance to their burrows. These owls use previously excavated burrows of squirrels for their home. Loss of habitat due to conversion of grassland to agriculture, poisoning of ground squirrels and urban expansion is the major factor for the owl's decline and current listing as a Species of Special Concern under the California Endangered Species Act. Collisions with autos may be a significant cause of mortality.

The burrowing owl eats mostly insects; also small mammals, reptiles, birds, and carrion. It hunts from a perch, hovers, dives, and hops after prey on ground. Breeding occurs from March through August, with peak in April and May.[1]

[1] http://www.dfg.ca.gov/whdab/cwhr/B269.html

WILDLIFE: SALT MARSH HARVEST MOUSE

This mouse is an endangered species found only in the emergent wetlands of San Francisco Bay and its tributaries. This mouse prefers to drink water with salinities between fresh and salt water. In winter, fresh green grasses are preferred. The rest of the year, pickleweed and saltgrass are main food sources. This mouse is mostly is restricted to a band extending from San Mateo County and Alameda County south along both sides of San Francisco Bay to Santa Clara County, but isolated populations occur in Marin and Contra Costa Counties. [2]

Although pickleweed is the primary habitat, some movement of individuals from pickleweed marsh to higher grasslands occur on occasion. The breeding season of this mouse ranges from March to November. [3]

WILDLIFE: WESTERN SNOWY PLOVER

Western Snowy Plover are distributed throughout beaches and coastal settings from southern Washington to southern Baja California, Mexico. The plover prefers the flat, bare or sparsely vegetated substrates of sandy coastal beaches and margins of inland playas. In general, plovers feed and nest on the beach just above high tide lines. Like many threatened species, the Western Snowy Plover has declined in number as a result of human disturbance and habitat loss. Known species occur in wetlands northwest of the planning area (NASA Ames Development Plan, 2001). Based on a field reconnaissance and database research, the Moffett Park Specific Plan area does not provide suitable habitat for the plover.

WILDLIFE: SALT MARSH WANDERING SHREW

Salt Marsh Wandering Shrews are found in the southern San Francisco Bay area. This animal typically inhabits salt marshes 6-8 feet above sea level, where abundant driftwood is scattered among pickleweed. While habitat loss has resulted in the decline of this shrew, based on a field reconnaissance and database research, suitable habitat does not exist within the Moffett Park Specific Plan area.

TREE PROTECTION POLICY

Various ornamental trees are prevalent in the project area. Large street trees with wide shady canopies define the character of the proposed Specific Plan area.

The City's tree protection policy requires the preservation of trees to the fullest extent possible. These trees provide habitat to common birds and animals.

The City of Sunnyvale Tree Removal permit (TRP) regulates the protraction, installation and long-term management of important trees. The TRP serves five functions:

[2] http://www.dfg.ca.gov/whdab/cwhr/M114.html
[3] http://www.dfg.ca.gov/whdab/cwhr/M114.html

- Protect large trees from unnecessary cutting
- Add to the economic value of the City
- Improve the appearance of Sunnyvale
- Help control soil erosion and pollution
- Shelter and feed wildlife

All protected trees are subject to the TRP. A protected tree is defined as any single trunk tree 38 inches or greater in circumference, or a multi-trunk where the trunks added together equal at least 38 inches. Removal or damage of a protected tree is illegal and are subject to fines and/or penalties of Sunnyvale Municipal Code Section 19.94.160. All development requires a tree protection plan to safeguard protected trees during construction.

3.3.2 Environmental Impacts and Mitigation Measures

WESTERN BURROWING OWL IMPACTS

Thresholds of Significance

Relevant General Plan Policies and Action Statements

None have been established for biological resources.

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, a biological resource impact is considered significant if the project would:

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Other Agency Thresholds

The U.S. Department of Fish and Game has listed this owl as a species of concern.

IMPACT 3.3-A **The presence of pairs of Western Burrowing Owl have been confirmed at the NASA Ames Research Center approximately one mile west of the proposed Specific Plan boundaries, as well as on the closed Sunnyvale Landfill. City staff have also noted a nest inside the boundaries of the Water Pollution Control Plant (WPCP) site source. Burrowing owl habitat can occur wherever there are ground squirrels and/or existing burrows. As such, burrows may exist within the Specific Plan Project boundaries. Each future development site has the potential for providing burrowing owl habitat. Therefore the following mitigation measures would be required. (Potentially Significant Impact if not Mitigated)**

According to the NASA Ames Development Plan Administrative Draft EIS, dated July 2001, several pairs of burrowing owls have been confirmed at the NASA Ames Research Center, which is located approximately one mile west of the proposed Specific Plan boundaries. The City of Sunnyvale has also noted on their web page (November 2001) that burrowing owl habitat has been provided at the recreational Baylands Park, which is located less than one mile east of the proposed project area. Additionally, owls have been discovered in the closed Sunnyvale Landfill, and City staff noted a nest inside the boundaries of the WPCP (Bill Theyskens, Environmental Engineering Coordinator, Public Works Department). However, the proposed project area is currently developed with manufacturing buildings, office buildings and asphalt parking lots. In general, the area has an urban character with very little onsite vegetation; the on-site vegetation that does exist is primarily limited to ornamental landscaping.

Nonetheless, if it is discovered that western burrowing owls or any other special status/endangered species are present within a specific development site, the property owner/developer shall minimize the potential for harm caused by construction through implementing the following mitigation measures.

Mitigation 3.3-A1 ***Because burrowing owls were not identified onsite during field reconnaissance, but are anticipated to occur within or proximate to the Specific Plan boundaries, focused surveys shall be conducted in accordance with the California Department of Fish and Game (DDFG) protocol during the peak nesting season (April 15 through July 15). Surveys must be conducted on four separate days from two hours before sunset to one hour after sunset, or from on hour before sunset to two hours after sunrise. The property owner/developer shall be responsible for retaining a qualified biologist to conduct the surveys in accordance with all applicable state (CDFG) protocol in effect at the time of development application review and consideration.***

If the presence of burrowing owls is verified on an individual development site within the Specific Plan area, a burrowing owl mitigation plan shall be implemented prior to construction. This plan shall include a pre-construction survey to determine the location of active burrows on the project site, passive exclusion of burrows to be impacted by project construction, installation of artificial burrows in the designated open space areas of the proposed project and mitigation monitoring. Specific requirements to be included in this plan shall be determined through consultation with CDFG. This shall be subject to

the review and approval of the City of Sunnyvale Community Development Department.

Mitigation 3.3-A2 ***In the event that removal of habitat for the western borrowing owl is required for development, the applicant/owner shall work with the Springtown Reserve, or similar preserve local to the Bay Area, to purchase habitat credits. (See contact information listed below)***

When burrows must be removed, owls shall be evicted outside the breeding season via passive relocation based plan developed by a qualified biologist. Lost burrows shall be replaced outside the nesting season, before construction begins. Burrows should be replaced at a 3:1 ratio either within owl preserves or other suitable habitat as determined by a biologist (Less Than Significant Impact with Mitigation)

Contact: ***Terry Huffman, (415) 925-2000***
Environmental Mitigation Exchange Company (EMAX)
21 Sunnyside Avenue
Corte Madera, CA 94925

SALT MARSH HARVEST MOUSE

Thresholds of Significance

Relevant General Plan Policies and Action Statements

None have been established for biological resources.

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, a biological resource impact is considered significant if the project would:

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Other Agency Thresholds

The salt marsh harvest mouse is listed as a State and Federal Endangered Species.

IMPACT 3.3-B **Salt marsh harvest mouse and salt marsh wandering shrew habitat exists in Baylands Park, northeast of the Specific Plan area. Predators of these mouse and shrew species are known to occur in the vicinity of and could potentially nest within the project area. If future development results in the creation of predator habitat, the presence of these species could potentially impact the populations of salt marsh harvest mouse and salt marsh wandering shrew (Potentially Significant Impact if not Mitigated).**

Salt marsh harvest mouse and salt marsh wandering shrew habitat consists of areas where pickleweed are prevalent. Habitat for the salt marsh harvest mouse was specifically created in wetland areas of the Baylands Park to replace or mitigate the loss of salt marsh harvest mouse habitat elsewhere. The salt marsh wandering shrew could also occupy this replacement habitat. The proposed Specific Plan does not provide for development opportunity in this area.

Predators include owls, hawks, gulls, weasels, and other mammalian predators.[4] Burrowing owls have been identified near the project area. Furthermore, as noted in Impact 3.3-A, future development has the potential for providing burrowing owl habitat. The presence of owls near the replacement salt marsh harvest mouse habitat could potentially have a significant impact on the populations of salt marsh harvest mouse and salt marsh wandering shrew. Therefore, the property owner/developer shall be required to abide by the following mitigation measure in order to minimize the potential for harm to salt marsh harvest mouse and salt marsh wandering shrew populations.

Mitigation 3.3-B ***No artificial habitat for burrowing owls shall be established near or adjacent to salt marsh harvest mouse and salt marsh wandering shrew habitat (Less Than Significant Impact with Mitigation).***

WESTERN SNOWY PLOVER

Thresholds of Significance

Relevant General Plan Policies and Action Statements

None have been established for biological resources.

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, a biological resource impact is considered significant if the project would:

[4] http://www.dfg.ca.gov/whdab/cwhr/M114.html

2) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Other Agency Thresholds

The western snowy plover is listed as a Federally Threatened Species.

IMPACT 3.3-C **The project area does not have suitable western snowy plover habitat (No Impact).**

The project area is currently developed with manufacturing buildings, office buildings, asphalt parking lots and limited ornamental landscaping. Potential habitat for the western snowy plover exists outside the Moffett Park planning area, in the wetland habitat to the north where plover have been observed foraging (NASA Ames Development Plan, 2001). However, because the project area does not provide suitable habitat for the western snowy plover, no impacts would occur as a result of project implementation.

Mitigation 3.3-C ***Mitigation is not required.***

TREES

Thresholds of Significance

Municipal Code

19.94 While there are few important biological resources in the developed, urban Moffett Park area, the City of Sunnyvale does maintain an ordinance to protect existing significantly sized trees in the City. "Significant size" trees are 38 inches or greater in circumference measured four (4) feet above ground for single-trunk trees. For multi-trunk trees "significant size" means a tree which has at least one trunk with a circumference 38 inches or greater measured four (4) feet above ground level, or in which the measurements of the circumference of each of the multi-trunks, when measure four (4) feet above the ground level, added together equal an overall circumference 113 inches or greater. As defined, it is the City's policy to:

1) Regulate the protection, installation, removal and long term management of significantly sized trees on private property within the city and city owned golf courses and parks; encourage the proper protection and maintenance of significantly sized trees which are located on such property;

2) Establish a review and permit procedure to assure the correct planting, maintenance, protection and removal of significant trees on such property; and

3) Establish penalties for violation of its provisions.

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines. For the purposes of this project, a biological impact is considered significant if the project would:

1) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Other Agency Thresholds

No other agency thresholds have been identified.

IMPACT 3.3-D **Implementation of the proposed project could result in the removal of ornamental street trees (Potentially Significant Impact if not Mitigated).**

Decorative street trees provide a rich dense canopy that shades the project area. All trees within the planting strip or public Right of Way (ROW) are subject to the policies of the Trees and Landscape Division of the Department of Public Works. Removal of any street trees would result in potentially significant impacts. Therefore the following mitigation measure shall be implemented.

Mitigation 3.3-D ***No existing street trees shall be removed from the Moffett Park Specific Plan area. Should future development within the Moffett Park Specific Plan area require or request removal of significantly sized trees as defined by Municipal Code 19.94, then the property owner/developer shall obtain tree removal permit. Tree removal will require replanting at a ratio of 2 to 1, of a tree size determined to be comparable in value by the Director of Community Development (Less Than Significant Impact with Mitigation).***

3.3.3 Conclusion

With the implementation of the mitigation measures identified in this section, potential impacts to biological resources would be reduced to less than significant levels.